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FIRST
BIENNIAL REPORT

OF THE

Montana State Water Conservation Board

TO THE

GOVERNOR, LEGISLATURE AND PEOPLE OF MONTANA

July 1, 1964
June 30, 1966

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1966

A. D. McDERMOTT, Director

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First Biennial report. 1966.

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MONTANA STATE WATER CONSERVATION BOARD

BIENNIAL REPORT

Cooney Reservoir
Corbon County

July 1, 1964
June 30, 1966

A. D. McDERMOTT, Director

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STATE OF MONTANA
STATE WATER CONSERVATION BOARD

LETTER OF TRANSMITTAL

Helena, Montana
October 1, 1966

The Honorable Tim Babcock, Governor
and Members of the 40th Legislative Assembly
and Citizens of the State of Montana

It is the honor of this Board to herewith submit its BIENNIAL REPORT for the period July 1, 1964 to June 30, 1966. The members of this Board also comprise the Montana State Planning Board, whose activities will be reported separately.

The Montana State Water Conservation Board

A. D. McDermott

A. D. McDermott, Director

Governor Tim Babcock, Chairman

Wilbur White, Vice Chairman and Secretary, Twodot
A. D. McDermott, Helena
H. J. Sawtell, Miles City

Clyde Hawks, St. Xavier
Sid Kurth, Billings
Donald L. Delaney, Missoula

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INTRODUCTION

This is the First Biennial Report of the Montana State Water Conservation Board. The report contained herein is for the biennium July 1, 1964 through June 30, 1966.

The Thirty-ninth Legislative Assembly abolished the Office of State Engineer and provided for transfer of the duties of that office to the State Water Conservation Board. The report of that previous office for this biennium is contained in this report.

The Montana State Water Conservation Board consists of seven (7) members including the Governor as Chairman and the Director, who are Board members ex officio. The five (5) remaining members are as specified by law, qualified electors of the state appointed to the Board by the Governor with the consent of the Senate.

The Montana State Water Conservation Board was created by Chapter 35, Ex. Laws of 1933 and approved on January 4, 1934. The Board was created to serve the public interest, welfare, convenience and necessity through the construction and maintenance of a system of works for the conservation, development, storage, distribution and utilization of the waters of Montana. The Board is endowed with broad powers in order that it may investigate, survey, construct, operate and maintain, finance, and otherwise fulfill its purpose. The works and activities which the Board may construct and engage in have been significantly expanded since the inception of the Board in order that wise, beneficial and general multiple use be obtained from Montana's water. As amended by the Thirty-ninth Legislative Assembly, Section 89-102, R.C.M. 1947 the term "works" is defined as follows:

> "The word 'works' shall be deemed to include all property, rights, easements, and franchises relating thereto and deemed necessary or convenient for their operation and all water rights acquired or exercised by the board in connection with such works, and shall embrace all means of conserving and distributing water, including, without limiting the generality of the foregoing, reservoirs, dams, diversion canals, distributing canals, waste canals, drainage canals, dikes, lateral ditches and pumping units, pipelines and waterworks systems and shall include all such works for the conservation, development, storage, distribution and utilization of water including, without limiting the generality of the foregoing, works for the purpose of irrigation, flood prevention, drainage, fish and wildlife, recreation, development of power, watering of stock, supplying of water for public, domestic, industrial, or other uses and for fire protection."

Designated Powers and Activities of the Board

In addition to and supplementing the process of constructing and maintaining a system of works, as that term was just defined, it has been designated that the Board have the following powers and engage in the following activities:

1. Acquire property by purchase or exchange, and acquire by condemnation land, water rights, easements, franchises, or other property;
2. Construct public works financed by revenue bonds, grants from the federal government, or state appropriations but only if estimates indicate that revenues obtained therefrom will repay the capital costs and provide sufficient operating revenue;
3. Plan and carry out a state-wide water conservation program and integrate all projects into that plan;
4. Issue revenue bonds not to exceed forty (40) years life nor six (6) percent interest to finance projects;
5. Fix the conditions of bonds including the authority to stipulate they are both revenue and mortgage bonds;
6. Fix the price of water furnished to users;
7. Contract with individuals or other governmental entities for water from projects;
8. Contract and cooperate with the federal government in the construction and operation of projects;
9. Prevent diversion of water owned by the Board unless permission is given;
10. Sell bonds at private sale to federal agencies;
11. Exercise its powers in an adjoining state, on public domain, or in an adjoining country (Canada) unless specifically prohibited by law;
12. Construct the Sidney project and control water from that project in Montana and North Dakota;
13. Sell or otherwise dispose of water impounded for irrigation, development of power, watering of livestock, or other purposes;

14. Have full control over all water in the state not vested in private ownership;
15. File for rights to unappropriated water for projects and maintain actions for adjudication of water rights on streams where projects are constructed;
16. Lease or sell projects not operated for irrigation or development of power to governmental entities when they are no longer needed;
17. Conduct a water resources survey for each county in the state;
18. Administer laws relating to ground water resources;
19. Cooperate with the U. S. Geological Survey in maintaining stream gaging stations;
20. Review projects constructed under the Flood Control Act of 1944 if authorized by Congress, and approve projects constructed under that Act which are built by the Corps of Engineers with congressional authorization;
21. Represent the state in negotiations between Montana and other states, or the federal government, including interstate compacts;
22. Inspect dams if they are believed unsafe;
23. File an opinion with the district court on the feasibility of irrigation districts under certain circumstances;
24. Represent Montana on all inter-agency comittees in both the Columbia and Missouri River Basins;
25. Represent Montana on the Missouri River Main Stem Reservoir Control Committee;
26. Serve as a member of the Water Wells Contractors Examining Board;
27. Serve as a member on the State Water Pollution Council;
28. Serve as a member of the Governor's Interdepartmental Advisory Council on Natural Resources;
29. Serve on the Tiber and Canyon Ferry Reservoir Control Committee;
30. Serve as a member of the Western States Water Council.

Summary of Past Activity

It is appropriate, since this is the First Biennial Report of this Board, to make a few brief summary statements concerning the Board's past activity and achievements.

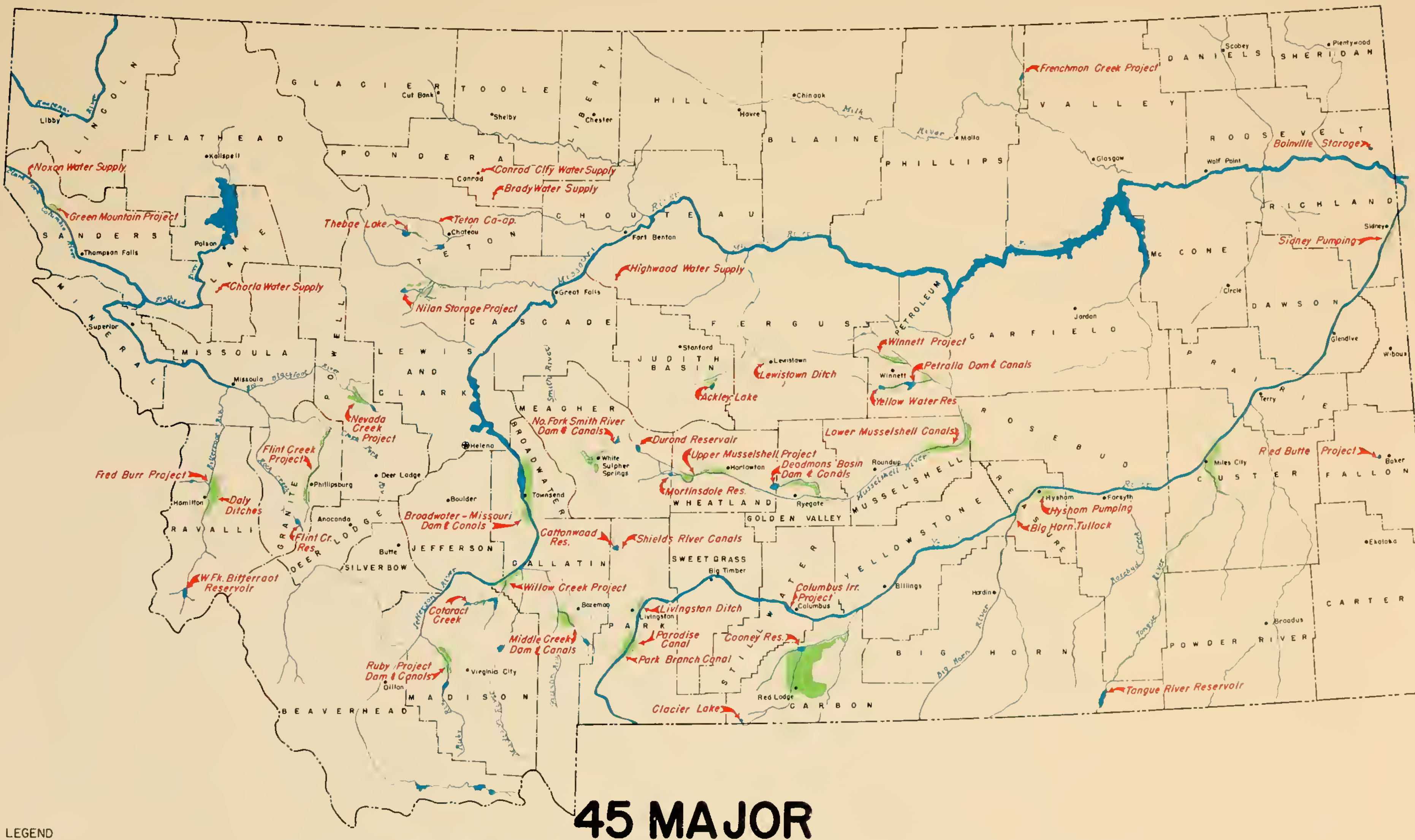
The Board has constructed 181 projects since it was founded. Of these, 141 were dams and reservoirs built to store 438,000 acre-feet of water. Some of these storage projects also have diversion structures and canals. Including these, 45 projects with 815 miles of canals have been built permitting the use of 260,000 acre-feet of water diverted directly from streams. The Board projects have furnished water supplies for 405,000 acres of land in Montana. In addition, a few municipalities have been assisted in their water problems through the efforts of the Board and its projects.

Throughout the years, the Board has made betterments and improvements to its projects and has operated these projects with notable success. Entire valleys and areas of the state have been economically stabilized and bolstered as a result of the Board's activity. Direct and indirect benefits already accrued to Montanans from Board projects is estimated to be in the neighborhood of 373-million dollars.

In cooperation with Montana State University at Bozeman, a study of three Board projects was made. The projects studied were (1) the Broadwater-Missouri project in Broadwater County, (2) the Ruby River project in Madison County, and (3) the North Fork Smith River project in Meagher County. The highlight findings of the study were: (1) Direct and indirect benefits derived from those projects stand at 46-million dollars; (2) The value of land that became irrigated as a result of those projects increased an average of $174.00 per acre; (3) Carrying capacity of pasture land brought under the projects increased from 0.3 to 5 animal units per month per acre; and (4) The gross increase in the value of crops raised on affected lands approximated 1.2-million dollars per year.

The last several sessions of the State Legislature have not allocated money to the Board for the development of new projects. Consequently, the Board's activity has been somewhat different than it was in the first several years of its existence. Considerable effort in recent years has gone toward insuring proper and continued operation of projects and solving problems created by such things as canal seepages and breaks, spillway and outlet works deterioration.

The map on the following page shows the 45 major projects constructed by the Board.



45 MAJOR

STATE WATER CONSERVATION BOARD PROJECTS

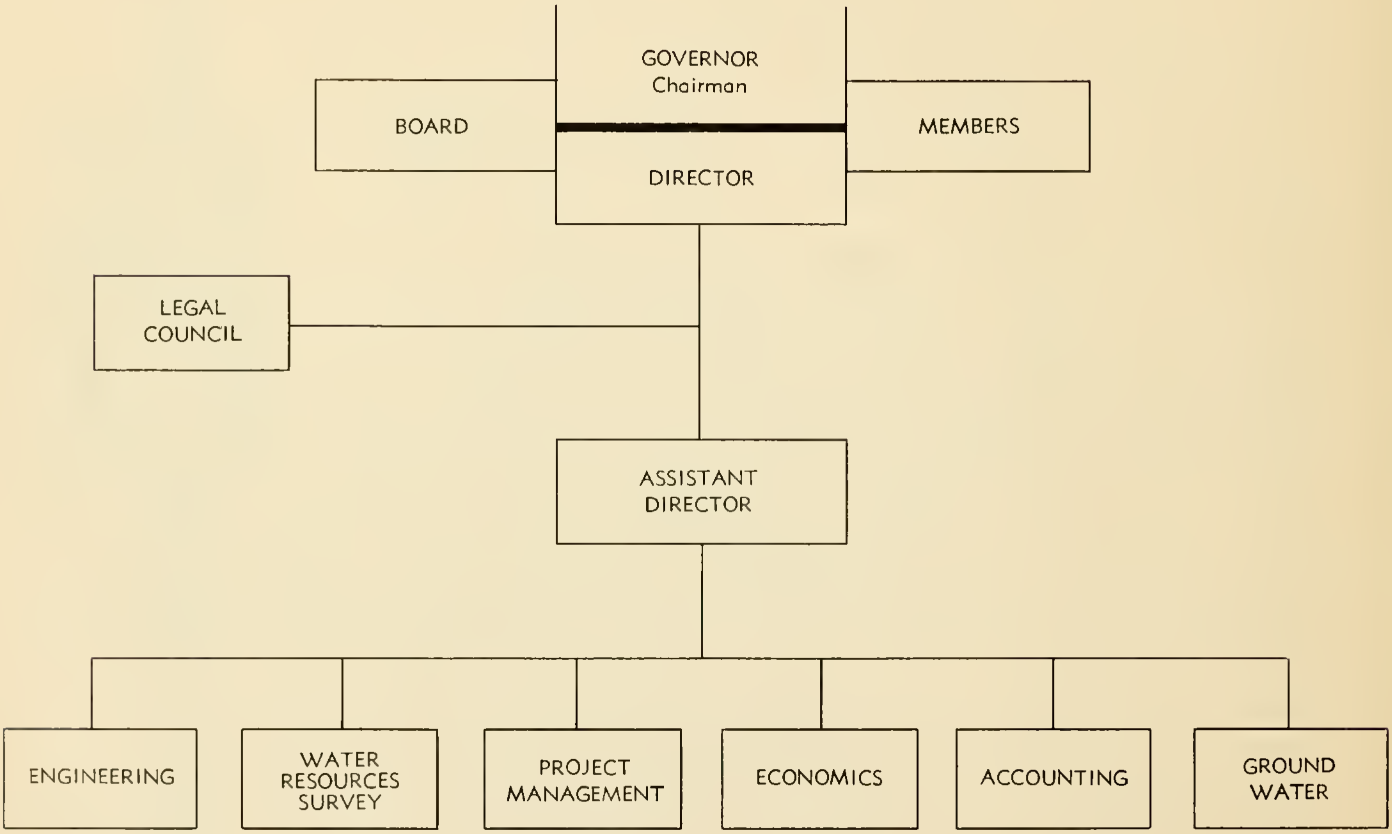
NOTE:
Not shown due to scale are 136 small projects

ADMINISTRATION

During the biennium covered by this report the Montana State Water Conservation Board assumed an expansion of responsibilities as a result of the transfer of the State Engineer and the duties of that office to the auspices of the Board. The principal benefit of this reorganization is that there is now one centrally administered agency of the State of Montana whose principal responsibility is the condition of the state's water supply and the appropriate use of that water. The Board and its Director are aided by an assistant director and a professional staff which is in charge of the major functional operations necessary in order that the Board meets its responsibility.

SUMMARY ORGANIZATION CHART

Montana State Water Conservation Board



Administrative Planning

In order that the Board may appropriately plan, evaluate, and make decisions on alternative courses of action, it's necessary to periodically obtain current and supplemental information and otherwise review proposed projects. An essential part of the reviewing and planning process is to determine if there is sufficient local interest and need for a particular project. During the biennium, staff members visit the areas of the most feasible projects for this purpose. Also discussed on these visits are the possibilities of developing the projects in the next five to ten years. The proposed projects and areas visited and investigated for these purposes during this biennium are listed below.

PROPOSED PROJECTS INVESTIGATED 1964-1966

	Project Name	County		Project Name	County
1.	Ashland Division	Rosebud	17.	Larb Creek Project	Valley
2.	Beaver Creek	Wibaux	18.	Little Beaver Creek	Carter
3.	Benton Creek	Meagher	19.	McGinnis Creek	Rosebud
4.	Big Sheep	Beaverhead	20.	North Chinook Project	Blaine
5.	Boulder Project	Jefferson	21.	Potter Creek	Park
6.	Box Elder Creek	Carter	22.	Rattlesnake	Beaverhead
7.	Bracket Creek	Park	23.	Rosebud River Project	Rosebud
8.	Clear Creek	Blaine	24.	Sheep-Newlan Project	Meagher
9.	Cottonwood Creek	Fergus	25.	Shields River	Park
10.	Cottonwood Project	Park	26.	Sidney Pumping Project	Richland
11.	Dorsey Project	Meagher	27.	Spring Creek	Fergus
12.	Elbow Creek Storage Project	Carbon	28.	Stillwater Project	Flathead
13.	Grasshopper Creek	Beaverhead	29.	South Bench Project	Madison
14.	Hotchkiss Ditch	Rosebud	30.	South Boulder	Madison
15.	Klienschmidt	Powell	31.	West Fork Rock Creek	Carbon
16.	Lake Mary Ronan	Lake	32.	Willow Creek Project	Valley

It was determined that eight of the above listed projects were in areas with an indicated need of water for irrigation and other uses. These projects are (1) Boulder Project in Jefferson County, (2) Elbow Creek Storage Project in Carbon County, (3) North Chinook Project in Blaine County, (4) Sheep-Newlan Project in Meagher County, (5) Sidney Pumping Project in Richland County, (6) Stillwater Project in Flathead County, (7) West Fork Rock Creek in Carbon County, and (8) Willow Creek Project in Valley County. Following this determination, the Board began more extensive investigation of matters pertaining to the development and construction of these projects. Items included in the second investigative phase are field surveys, soil and geological testing, preliminary cost estimating, and more detailed feasibility studies. Reports on these are included in the proposed construction budget for the coming biennium.

In many instances activities of the Board directly involves soil and water districts and county agents. The Board thus felt that it would be worthwhile to contact each district and agent in Montana for an exchange of ideas and to inform them of how the Board could assist in various types of water programs. In the last quarter of the biennium the Board began a program of paying visits to county agents and soil and water districts for this purpose. A majority of the agents and districts had been contacted at the close of the biennium. Through these visits the Board has become more aware of local interests and benefits that might accrue from Federal programs adjunct to State and/or local programs. A number of project proposals have been stimulated by these meetings. Reports on these projects are included in the next biennial budget.

Water Resources Planning Act

The Congress, in 1965, passed the Water Resources Planning Act. This law (PL. 89-80) created a Water Resources Council composed of the Secretaries of the (1) Interior, (2) Agriculture, (3) Army, (4) Health, Education, and Welfare, and (5) the Chairman of the Federal Power Commission. Title II of this Act provides for the establishment of River Basin Commissions when the Council or Governors of states, which are wholly or partially within a basin, request the establishment of such a commission.

A river basin commission established under this Act is charged with two primary responsibilities. These are:

1. The preparation of comprehensive plans for the development of water and related land resources within its area.
2. To coordinate other such plans prepared by Federal, State, interstate, local, and non-governmental entities.

Montana is among the five Pacific Northwest states which have already petitioned for the establishment of a Pacific Northwest River Basin Commission. The Director of the State Water Conservation Board has been designated acting representative to this commission. This proposal is opposed by other western states which have devised water diversion schemes to obtain water from this area. These other states feel that a new basin commission should include themselves thereby giving them a majority of the membership. It is expected that states which are in the Missouri River Basin will soon apply for a commission under this Act. Montana, of course, will be eligible and called upon to participate in that commission.

Relation to the Water Resources Planning Act

Under Title III of the Water Resources Planning Act (P.L. 89-80), states are entitled to apply for financial assistance from the Federal Government for the purpose of conducting comprehensive water and related land resource planning. Such planning will be subject to guidance by the Federal Water Resources Council (established under Title I of this Act) and, in no event, will Federal funds exceed 50 percent of the cost of preparing a state's comprehensive plan.

ENGINEERING

The primary responsibility of the Engineering Department of the Board is the designing, construction, and maintenance of existing and proposed projects. Periodic investigations are carried out to determine the need for repairs and alterations to existing projects. When new projects are proposed, the Engineering Department conducts studies to determine the feasibility of these projects. If a proposed project is feasible and those involved with it (local groups) express a sincere interest in its development, final plans are prepared and the means of financing construction are investigated.

The Engineering Department cooperates with the State Fish and Game Department and the U. S. Bureau of Outdoor Recreation in surveying and designing public access areas for recreational purposes on state owned reservoirs.

During this biennium the Engineering Department fully investigated 1964 flood damage on Birch and Dupuyer Creeks in Pondera and Teton Counties. Applications for disaster funds were made to the U. S. Office of Economic Planning.

Spillway of the Tongue River Reservoir

EQUIPMENT CREW

The Equipment Crew is responsible for repairs to existing Board projects. During the winter months when weather forces a shutdown of on-the-project-work, the crew is engaged in preparing materials which will be needed when they return to project repair work. Costs incurred by the Board for Equipment Crew work performed on a specific project are repaid by the project through the water users' association.

The following outline summarizes work carried on by the Board's Engineering Department and its Equipment Crew during this biennium.

PROJECT WORK SUMMARY JULY 1, 1964 - JUNE 30, 1966

Montana State Water Conservation Board

Tongue River Reservoir—Big Horn and Custer Counties

1. Prepared recreation survey.
2. Designed and constructed a 400-foot by 50-foot deep steel piling cutoff at the crest of the spillway. We supervised the grouting of an additional 40-foot formation below the piling to prevent the seepage of storage water under the spillway slope.
3. Laid a gravel surface on 3½ miles public access road to the reservoir.
4. Repaired and painted caretaker's house.
5. Staked out cabin sites.

Cooney Reservoir—Carbon County

1. Prepared recreation survey.

Durand Project—Meagher County

1. Prepared recreation survey.

North Fork Smith River Project—Meagher County

1. Prepared recreation survey.

Martinsdale Reservoir—Wheatland County

1. Prepared recreation survey.

Petrolia Reservoir—Petroleum County

1. Prepared recreation survey.
2. Replaced 13 wooden turnouts with new concrete structures and metal headgates.
3. Installed a new concrete wasteway with metal headgates.
4. Placed riprap at face of dam to prevent erosion.

Nilan Reservoir—Lewis and Clark County

1. Prepared recreation survey.
2. Repaired extensive flood damage on the Nilan Diversion Canal and the Florence Canal.

Ackley Lake Reservoir—Judith Basin County

1. Prepared recreation survey.
2. Designed a waterway.
3. Cleaned 1,350 feet of intake canal.
4. Replaced two turnouts and a gate.
5. Replaced two major wasteway structures on the main canal which were damaged by the 1964 flood.

Daly Ditches—Ravalli County

1. Designed and constructed a wasteway.
2. Cleaned main diversion dam on Bitterroot River at Republican headgates.
3. Repaired river slide damage on Hedge Canal.

Lower Musselshell Project—Musselshell County

1. Designed and constructed a concrete wasteway.
2. Installed 14 new concrete turnouts.
3. Built a new 16-foot farm bridge.
4. Installed bentonite lining along canals to reduce seepage.
5. Altered 2,200 feet of the Delphia Canal.

Ruby River Dam—Madison County

1. Designed, let contracts and inspected the repairs to the concrete joints on the spillway.

Nevada Creek Project—Powell County

1. Designed a new outlet structure for the dam to be constructed this fall.
2. Installed two Stevens Recorders on main canal.
3. Installed two measuring flumes.
4. Repaired one turnout.

Hysham Project—Treasure County

1. Assisted Highway Department on road relocation.
2. Negotiated a new Federal contract for electrical energy.

Charlo Water Supply Project—Lake County

1. Designed, let contracts and inspected construction of a new 40,000-gallon elevated steel water tower for the town water supply system.

Smith River Storage—Meagher County

1. Installed measuring devices.

Deadman's Basin—Golden Valley, Musselshell and Wheatland Counties

1. Made necessary emergency repairs to the Careless Creek drop.
2. Diversion works and gates were cleaned.
3. Riprap was placed to protect the outlet of the dam.

Columbus Ditch—Stillwater County

1. Emergency repairs were made to the large flume on the main canal which was damaged by fire in 1964—another section of the same flume was washed-out in 1965 season causing damage to the railroad.

Park Bench Canal—Park County

1. Installed three measuring devices.

Cataract Project—Madison County

1. Installed two measuring devices.
2. Completed emergency repairs on the spillway abutment where a slide developed endangering the spillway.

Upper Musselshell Project—Meagher and Wheatland Counties

1. Diversion works and gates were cleaned and repaired.
2. The spillway on Martinsdale Dam was repaired and new concrete struts placed to stabilize the spillway walls.
3. Drains in both dams on the Martinsdale Reservoir were repaired.
4. Supervised grouting of the south abutment of the north dam to prevent a large seepage loss.

Fish Creek Irrigation Project—Jefferson County

1. Plans drawn and bids opened for construction of new headgate.

Willow Creek Storage Project—Valley County

1. The Board conducted field surveys and did necessary drilling for the foundation exploration, and compiled a preliminary feasibility report for this proposed project.
2. Construction is scheduled for the next biennium.

North Chinook Reservoir—Blaine County

1. Preliminary field surveys were completed, and a preliminary report submitted to the local group for their evaluation.
2. Construction is scheduled for the next biennium.

Larb Creek Storage Project—Valley County

1. A preliminary field investigation was completed, and a feasibility report is being compiled at present.

Elbow Creek Storage Project—Carbon County

1. Project investigation and preliminary feasibility report completed.

Sidney Pumping Project—Richland County

1. Assist S.C.S. with preliminary feasibility report for rehabilitation of the project.

West Fork Rock Creek—Carbon County

1. Updated and completed a revised preliminary feasibility report which considered recreation and fish and wildlife as a project benefit.

Boulder Storage Project—Jefferson County

1. Began field surveys for preliminary feasibility report.

Stillwater Project—Flathead County

1. Began compiling data for project investigation.

Equipment Crew
Grouting the
Martinsdale Dam.

HYDROGRAPHY

The State Water Conservation Board is charged with the responsibility of collecting, or having collected, information on the flow of streams and the measurement of water in the state. The Hydrography section is primarily concerned with these measurements and the measuring and recording of water used on state owned projects. This section also engages in weed spraying and moss control on state owned projects. This latter work is necessary to prevent the spread of noxious weeds and to prevent moss from clogging canals.

The water measurement responsibility is met through a cooperative program with the Water Resources Division of the U. S. Geological Survey. A part of this program is devoted to water management and interstate affairs. However, the main part of the program is the maintaining of a collection of basic hydrologic records needed for agricultural, industrial, recreational, and other uses.

During this biennium, the cooperative stream gaging program wholly supported 47 out of 90 primary gaging stations and 4 out of 25 secondary stations in Montana. The Board also wholly supported 22 water management stations, 23 reservoir stations, 11 peak discharge stations, and 3 peak discharge and low flow stations. In the administration of the Yellowstone Compact, the Board and the Office of the Wyoming State Engineer shared costs on three primary gaging stations and one water management station. The Board also contributed to ten primary and one secondary station which are chiefly supported by the U. S. Corps of Engineers.

GROUND WATER

The Board is the Administrator of Montana's Ground Water Code which regulates the use of Montana's underground water. The State does not require permits in order to develop ground water. Nonetheless, when a dispute over the use of ground water arises between appropriators, the Board must settle such a dispute if called upon to do so. Upon complaint from a number of ground water users in any area of the state, the Board is required to: (1) Establish a controlled Ground Water Area, (2) Issue rules and regulations pertaining to withdrawal of ground water therein, and (3) Inspect the area to ascertain that the Board's orders are being carried out.

During this biennium, the Board continued to compile and catalog information from many thousands of individual ground water recordings. In addition, this Board received and processed inquiries on the availability of ground water, inquiries regarding procedures to be followed in claiming ground water rights, and requests for information as listed on specific ground water logs. Complaints received from ground water users near Baker concerning the withdrawal of ground water from the Fox Hills aquifer for use in a water-flooding program for the secondary recovery of oil have been investigated by the Board and assistance rendered toward obtaining corrective actions where required.

INSPECTION OF DAMS

Montana law provides that whenever three (3) or more persons residing below a dam or having property which could be affected by a dam petition the Board to inspect the dam because they believe it to be unsafe, the Board must make the inspection and require corrective action whenever necessary. During this biennium the Board was twice called upon to inspect structures under the above law.

The first inspection was of a dyke across a channel of the Yellowstone River near Glendive. The dyke had been constructed for agricultural purposes by a farmer who owned an island in the river, access to which was provided by the dyke. Twenty-one property owners opposite the island petitioned for an inspection on the grounds that the dyke, by forcing the river to flow on their side of the island, might cause flooding and increased bank erosion. Inspection validified the contention of the petitioners and appropriate action was taken.

The second inspection involved a small dam near Shelby whose spillway and outlet works had been damaged by floods. Because the dam was upstream from Shelby, the community could suffer flood damage if the dam were breached. An inspection was made and recommendations prepared for repairing the dam to proper standards.

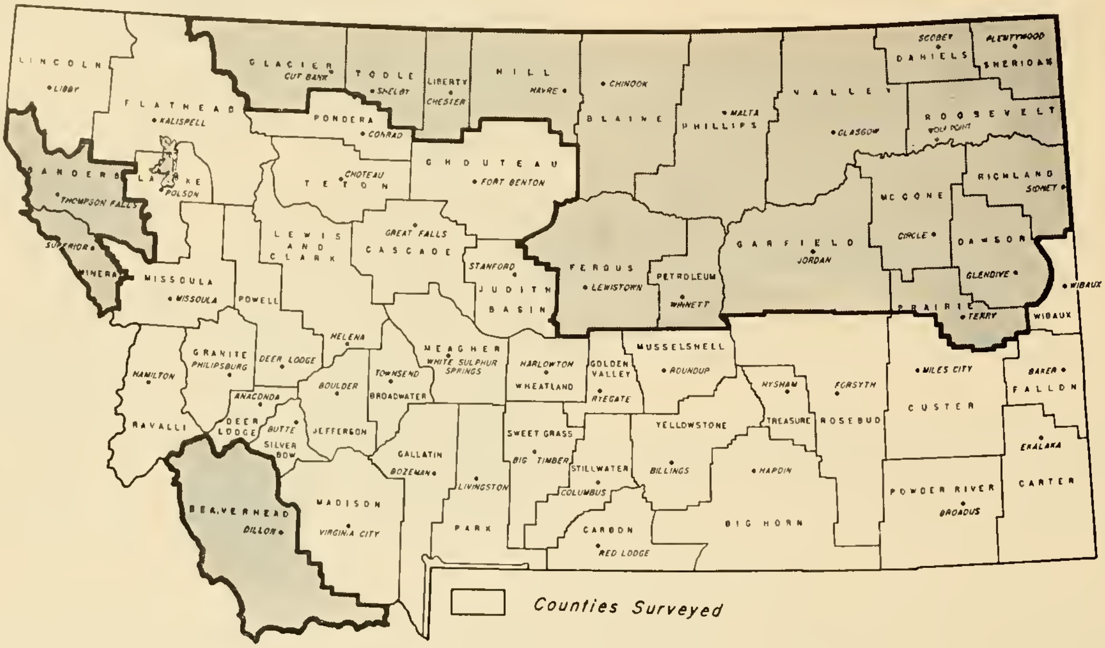
Swift Dam on Birch Creek after Breach in 1964 Flood.

WATER RESOURCES SURVEY

The Board's prime responsibility in the field of "surface" water and the rights thereto is to conduct a county-by-county Water Resources Survey. This survey was initiated a number of years ago because records of surface water rights in Montana were confused and difficult to find. This situation had developed as a result of antiquated laws which allow a person to appropriate water from Montana in several ways. On unadjudicated streams appropriation records are not complete. Thus, it is not always known what quantity of water is used or who the users may be. It is necessary to obtain accurate information regarding the use of surface water in Montana in order to protect the rights of each user against claims of other users as well as to protect Montana against future claims on our water by downstream states or the Federal government.

The Board seeks this information through the Water Resources Survey. The survey begins in local county courthouses with a search of all records. Following the courthouse search, visits are paid to each water user to find out what surface water rights he thinks he has. On these visits irrigation works and the land irrigated are also inspected. Findings are then checked against courthouse records and any necessary adjustments are made. The last phase of each county survey takes place in the Board's offices where the information is assembled into final form before being published as a full county report and added to the state survey. Only one or two counties may be surveyed each year under present appropriation. To date 36 of the 56 county surveys have been completed. These counties are shown on the following map and are listed alphabetically in the accompanying table.

LOCATION OF COUNTIES WITH COMPLETED WATER RESOURCES SURVEYS



County	Year Survey Published	County	Year Survey Published
Big Horn	1947	Madison	1954
Broadwater	1956	Meagher	1950
Carbon	1946-1966	Missoula	1960
Carter	1960	Musselshell	1949
Cascade	1961	Park	1951
Chouteau	1964	Pondera	1964
Custer	1948	Powder River	1961
Deer Lodge	1955	Powell	1959
Fallon	1960	Ravalli	1958
Flathead	1965	Rosebud	1948
Gallatin	1953	Silver Bow	1955
Golden Valley	1949	Stillwater	1946
Granite	1959	Sweet Grass	1950
Jefferson	1956	Teton	1962
Judith Basin	1963	Treasure	1951
Lake	1963	Wibaux	1960
Lewis & Clark	1957	Wheatland	1949
Lincoln	1965	Yellowstone	1943

During this biennium the counties of Flathead and Lincoln were surveyed for the first time and Carbon County was resurveyed. Carbon County was resurveyed as a result of the Yellowstone River Compact which was negotiated after the original survey of Carbon County. Under the terms of this compact, Wyoming gets 60 percent of the surplus water of the Clarks Fork of the Yellowstone. Increased irrigation activity in Wyoming has caused concern that some of the water Montana is entitled to may not get here. Thus it was felt a resurvey and current information of this area was eminent.

It will be necessary to continually update the Water Resources Survey even after all counties are completed in order to have currently accurate information. Furthermore, since Montana does not require appropriations of surface water rights to be approved by the State, continuing surveys will be necessary in order to know how much water is being used and where, when, and by whom it is being used.

Pressures which have recently mounted from other states and Canada are aimed at obtaining some of Montana's water for themselves. This makes it imperative that we increase the number of counties which can be studied each year in order to more quickly obtain firm evidence of Montana's present rights.

WATER WELL CONTRACTORS EXAMINING BOARD

The 1961 State Legislature provided for the licensing of all water well drillers who contract to drill water wells for compensation on land other than their own in Montana and who drill wells to a depth greater than 25 feet. The Director of the State Water Conservation Board is a member of the Board which administers the above mentioned law.

WATER POLLUTION COUNCIL

The Director of the Board is a member of this council which administers the Water Pollution Act and advises the State in the abatement and prevention of water pollution.

During this biennium the Council continued its efforts to obtain appropriate treatment of water pollutants in the State. Of particular interest to the State Water Conservation Board is the establishment of standards or criteria of water quality, especially with respect to streams and return flow.

THE GOVERNOR'S INTERDEPARTMENTAL ADVISORY COUNCIL ON NATURAL RESOURCES

The State Water Conservation Board, represented by the Director, is a member of this Council. The purpose of this Council, which meets four times a year, is to bring together department heads of state agencies with mutual and sometimes opposing interests in the course of the development and utilization of Montana's natural resources. The Council considers what effects various items of any type of activity, legislation, or compact, to mention a few, may have on natural resources in Montana. The Council studies policies, recommends changes, and otherwise advises on actions which are concerned with natural resources. The Council also provides the opportunity for the various departments to become acquainted with each others problems.

FLOOD CONTROL

The Board participates with Federal authorities, regional groups, other state agencies and localities in the study, alleviation, and prevention of floods and flood damage. Considerable activity in this biennium was a result of the floods of 1964 and their aftermath. Action was initiated during this biennium with the cooperation of the Corps of Engineers to make flood plain studies of all or parts of the Sun, Flathead, Whitefish, Clark Fork of the Columbia, and Yellowstone Rivers. The Board was also a participant in the North Pacific Division Flood Plain Information symposium.

MONTANA PESTICIDES COUNCIL

The Director of the Board serves on this Council composed of the heads of all state agencies and departments. This Council, established as the biennium drew to a close, will study applications and effects of pesticides in Montana. The Council will strive to improve the use of pesticides in the State.

COMMISSIONS, COMMITTEES, COMPACTS, AND INTERNATIONAL AGREEMENTS

The State Water Conservation Board is, by law, Montana's representative in negotiations between the various states and the Federal Government on agreements or compacts regarding interstate waters. These agreements must, however, be ratified by the several State Legislatures and by the Congress in order to become effective.

Yellowstone River Compact

Montana's only operating compact is the Yellowstone River Compact between the States of Montana, Wyoming, and North Dakota. This compact provides for the allocation and use among the three states of the waters of the Yellowstone River and its tributaries—except for that part in Yellowstone

National Park. The Yellowstone Compact provides that all water rights on these streams which were perfected prior to January 1, 1950, are vested and are not subject to the terms of the Compact. In addition, the terms specify that this water should not be diverted outside the Yellowstone River Basin. The Director of the State Water Conservation Board, the State Engineer in Wyoming, and a representative appointed by the U. S. Geological Survey are members of the Compact Commission. North Dakota is not required to contribute funds toward the operation of the Compact and it does not have a vote in the meetings. The Federal representative is the chairman, but he has no vote except in the case of a tie.

In order to administer this Compact, it became necessary to keep a compilation of the water rights filed within Montana and Wyoming after January 1, 1950. Such information was available in Wyoming, but Montana has no provision for recording water rights with the State. The 1953 Montana Legislature attempted to correct this situation by passing a law which requires all water right appropriations filed in the areas of the Yellowstone River Basin affected by the Compact to also be filed in the Board's Office. Apparently, either through oversight or ignorance of the law at the local level, only a small number of appropriations have been received by the Board. Furthermore, these filings only indicate the amount of water claimed by an appropriator; they do not and cannot show proof of the actual amount of water used. Thus, it is becoming necessary for the Board's Water Resources Survey Division to restudy some of the counties within the Yellowstone River Basin to determine how much water remains for appropriation in Montana under the terms of the Compact, in order to evaluate future claims to water by either Montana or Wyoming.

During this biennium, it did not become necessary to allocate Yellowstone River Basin waters under terms of the Compact. However, as irrigation use and industrial development increase in the Basin, allocation of the Basin's waters may become necessary.

Columbia Interstate Compact Commission

This proposed Compact, officially signed by representatives of all seven states in the Columbia River Basin, was submitted to their respective legislatures for ratification during the previous biennium. Oregon and Washington did not ratify the Compact and refused to participate financially for their share of the support of the commission staff and office which is in Spokane. As a result, only a few organizational meetings have been held during this biennium. At the September meeting it was decided to close the offices (located in Spokane) on November 1, 1966, and suspend operations pending further developments. Records and other matter on file in Spokane are to be transferred to the offices of the Idaho State Water Resources office. It is, however, anticipated that the CICC will be reactivated or another organized.

Waterways Treaty (St. Mary and Milk Rivers)

According to the Waterways Treaty, signed in 1909, by the United States and Great Britain, the water of the St. Mary and Milk Rivers and the international tributaries of the Milk River are to be divided equally between the United States (Montana) and Canada. In making such equal apportionment, however, more than half of the water may be taken from one river and less than half from the other by either country so as to afford a more beneficial use of each. During the irrigation season, the United States is entitled to a prior appropriation of three-fourths of the natural flow of the Milk River and Canada is entitled to three-fourths of the natural flow of the St. Mary River. The principal international tributaries affecting Montana are Sage Creek (North of Havre), Lodge and Battle Creeks (North of Chinook), and Frenchman Creek (North of Saco).

Columbia Basin Inter-Agency Committee

Montana (the Board) is one of the permanent members of the Columbia Basin Inter-Agency Committee (CBIAC). This organization has been conducting water resource studies for several years. Members of the Board, the Director and staff personnel attend meetings of the CBIAC and the subcommittees and work groups thereof in the course of assembling and disseminating information, preparing studies, and fulfilling numerous other responsibilities.

Budgetary limitations have made it impossible for the Board to take part in most CBIAC activity. Participation has been restricted to matters of direct and urgent concern to Montana.

COLUMBIA BASIN INTER-AGENCY COMMITTEE MEMBERSHIP AND ORGANIZATION

COLUMBIA BASIN INTER-AGENCY COMMITTEE
(CBIAC)

PARTICIPATING STATES AND AGENCIES

STATES

- Idaho
- Montana
- Nevada
- Oregon
- Utah
- Washington
- Wyoming

FEDERAL AGENCIES

- Department of Agriculture
  - Economic Research Service
  - Forest Service
  - Soil Conservation Service
- Department of the Army
  - Corps of Engineers
- Department of Commerce
  - Office of Business Economics
  - Weather Bureau
- Dept. of Health, Education, & Welfare
  - Public Health Service
- Dept. of Housing & Urban Development
- Department of the Interior
  - Bonneville Power Administration
  - Bureau of Indian Affairs
  - Bureau of Land Management
  - Bureau of Mines
  - Bureau of Outdoor Recreation
  - Bureau of Reclamation
  - Fed. Water Pollution Control Adm.
  - Fish and Wildlife Service
  - Geological Survey
  - National Park Service
- Department of Labor
- Federal Power Commission

TECHNICAL SUBCOMMITTEES

- Coordinated Planning
- Economics
- Fisheries
- Hydrology
- Meterology
- Mosquito Control
- Power Planning
- Recreation
- University Liaison
- Water Management
- Water Supply and Pollution Control

Columbia - North Pacific Study Technical Staff

A regional study of the water and related land resources and needs of the Pacific Northwest is under way on a cooperative basis by many State and Federal agencies. This study, known as the "Columbia - North Pacific Region Comprehensive Framework Study," is part of a nation-wide program to develop framework plans for all of the major river basins in the United States.

The principal objective of the study is to determine future needs of the Northwest for water and related lands, compare these needs to available resources, and develop general plans to meet projected needs.

The study will consist of five basic elements:

(1) Economic base study and projections of economic development for the years 1980, 2000, and 2020;
(2) Projection of future water and related land needs for these years;
(3) Inventory of the Region's surface and ground water resources;
(4) Inventory of the Region's land resource and uses; and
(5) Formulation of framework plans that will serve as guides for the management and development of the Region's water and related land resources.

All needs and uses of water and related lands will be analyzed, including some not always recognized as being water resource development functions. These will include water quality and pollution control, municipal and industrial water supplies, recreation, fish and wildlife conservation, and watershed protection, as well as the more commonly known functions such as irrigation, hydroelectric power, navigation, and flood control.

Plans will not be developed to the point that specific projects can be recommended for construction. They will be in sufficient detail, however, to produce a framework into which projects and programs for resource developments may be placed in proper relation with each other. The coordinated plan will serve as a broad guide for future, more detailed planning of tributary river basins and watersheds in relation to downstream areas.

The study will not consider the import or export of water from the Columbia-North Pacific Region. However, transfers between subbasins within the Region will be considered.

The study will consider the following specific subjects:

1. History of the Study
2. Legal and Administrative Background
3. The Region
4. Land and Mineral Resources
5. Hydrology (Water Resources)
6. Economic Base and Projections
7. Flood Control
8. Land Measures and Watershed Protection
9. Irrigation
10. Navigation
11. Municipal and Industrial Water Supply
12. Water Quality and Pollution Control
13. Recreation
14. Fish and Wildlife
15. Electric Power
16. Comprehensive Framework Plan

Missouri River States Committee

This Committee, composed of the Governors of the ten Missouri River Basin states and two advisors from each state appointed by their Governor, was formed in 1941. The purpose of the committee was to foster planning and expedite action for the harnessing of the then wild and mighty Missouri River for the greatest common good of the Basin and the Nation. In recent years, the Committee has become a "sounding board" for the views of the Basin States regarding proposed Federal legislation and proposed Federal projects which may affect the Missouri River Basin. The State Water Conservation Board's Vice-Chairman and its Director are members of this Committee.

Missouri Basin Inter-Agency Committee

The Missouri River Basin is the second major river basin in which Montana has a large and direct interest. In terms of land area involved, approximately 75 percent of Montana is within this basin and comprises 29 percent of the Missouri Basin. The Board's Vice-Chairman and Director are designated representatives to the Missouri Basin Inter-Agency Committee (MBIAC) which like the CBIAC is the central coordinating organization for water resource development in its area.

MISSOURI BASIN INTER-AGENCY COMMITTEE MEMBERSHIP AND ORGANIZATION

MISSOURI BASIN INTER-AGENCY COMMITTEE
(MBIAC)

PARTICIPATING STATES AND AGENCIES

STATES

Colorado
Iowa
Kansas
Minnesota
Missouri
Montana
Nebraska
North Dakota
South Dakota
Wyoming

FEDERAL AGENCIES

Department of Agriculture
  Soil Conservation Service
  Forest Service
  Federal Extension Service
  Agricultural Research Service
  Economic Research Service
  Agricultural Stabilization & Conservation Service
  Rural Electrification Administration
  Farmers Home Administration

Department of the Army
  Corps of Engineers

Department of Commerce
  Bureau of Census
  Office of Business Economics
  Business & Defense Services Administration
  Economic Development Administration
  Office of the Under Secretary for Transportation
  Weather Bureau
  Coast & Geodetic Survey
  Bureau of Public Roads

Department of Health, Education, & Welfare
  Public Health Service

Department of the Interior
  Bureau of Reclamation
  National Park Service
  Bureau of Outdoor Recreation
  Bureau of Land Management
  U. S. Geological Survey
  Bureau of Indian Affairs
  Fish & Wildlife Service
  Bureau of Mines

Department of Labor
  Bureau of Employment Security

Federal Power Commission

STANDING COMMITTEE

WORK GROUPS

Executive	6 Task Forces
Economic Base Study	6 Task Forces
Determination of Land & Water Needs	7 Task Forces
Hydrologic Analysis and Projections	7 Task Forces
Land Resource Availability	6 Task Forces
Water & Related Resource Development	9 Task Forces

The Comprehensive Framework Plan for the Missouri Basin would consist of studies of an area that provide long-run economic projections of economic development, translation of such projections into demands for water and related land resource uses, hydrologic projections of water availability both as to quantity and quality, and projections of related land resource availability, so as to outline the characteristics of projected water and related land resource problems and the general approaches that appear appropriate for their solution.

Missouri River Main Stem Reservoior Control Committee

The Director of the State Water Conservation Board is a member of this committee which was established by the U. S. Corps of Engineers for the purpose of studying both anticipated and actual flows of the Missouri River in order to develop annual operating plans for the River's major reservoirs. Two meetings per year are held in the Corps' offices in Omaha, Nebraska.

During the past biennium, storage in the six major dams increased tremendously to a total of 58,395,000 acre-feet, which was a record high. This represented a gain in storage of 29 percent.

The following table shows, in 1,000 acre-feet, the maximum storage capacity of each main stem reservoir, the dead storage, and the total acre-feet in storage (including dead storage) as of July 1, 1966:

Reservoir	Maximum Storage	Dead Storage	In Storage 7/1/66
Fort Peck	19,400	4,500	16,530
Garrison	24,500	4,900	20,704
Oahe	23,600	5,500	14,455
Big Bend	1,900	260	1,718
Fort Randel	6,100	1,400	4,533
Gavins Point	541	156	455
TOTAL	76,041	16,716	58,395

Reservoir Control Committee, Canyon Ferry & Tiber Reservoirs

The Director of the State Water Conservation Board is a member of this Committee which was established by the U. S. Bureau of Reclamation for the purpose of regulating reservoir storage and water releases at the above two reservoirs.

INTERNATIONAL STREAM MEASUREMENT

The U. S. Geological Survey (in cooperation with the Board), in behalf of the United States, and the Department of Mines and Technical Surveys, in behalf of Canada, conduct stream measurements on their respective sides of the International Boundary. Allocation of water to the two countries are made every ten days throughout the irrigation season in accordance with an order of the International Joint Commission. Nevertheless, as more land is irrigated and more storage reservoirs built in Canada, less water flows across the Boundary to Montana. In addition, some Canadian officials believe that the Treaty meant to give each country half of the annual flow of each stream. Under such an interpretation Montana might receive its half in March, during the spring runoff, before the ground is properly thawed or before any irrigation is desired and then not be eligible for any water during the irrigation season. Another problem with respect to stream measurement and water allocation is the contention that Montana should have better records of its water use and efficiency. In attempting to resolve these problems, the Board makes field inspections of international streams and meets with Canadian officials for the purposes of determining reduced flows to Montana and reaching mutual agreement on procedures for apportioning international waters.

WESTERN STATES WATER COUNCIL

The Western States Water Council was formed on August 3, 1965 pursuant to action by the Western Governors' Conference at its June 12, 1965 meeting. The WSWC is composed of the Governors of the States of Arizona, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming, who are members ex officio and not more than three Governor appointed representatives from each of these states. The Director of the Board has been appointed by the Governor as one of Montana's representatives to this council. The others are Wesley A. D'Ewart and Clyde L. Hawks. Membership of the council may be expanded to include Alaska and Hawaii, if those states so request. The WSWC meets four times a year. The July meeting of each year has been designated as the annual meeting at which recommendations relating to deficiencies in the water information and work programs for the ensuing year are determined. The Council maintains an office and a nominal professional staff.

The purpose of the WSWC, as set forth in the Rules of Organization, is ". . . to accomplish effective cooperation among western states in planning for programs leading to integrated development by state, federal, and other agencies of the water resources." The functions of the Council are to:

1. Prepare criteria in the formulation of plans for regional development of water resources to protect and to further state and local interests; and
2. undertake continuing review of all large-scale and interstate and inter-basin plans and projects for the development, control, or utilization of water resources in the western states and submit recommendations to the Governors regarding the compatibility of such projects and plans with an orderly and optimum development of water resources in the western states.

The underlying premise on which the WSWC is founded is the protection of states of origin in the development of water resources. Montana, as a water origin state, thus has a vital interest in continuing to support and participate in the Western States Water Council.

ULTIMATE WATER NEEDS STUDY

As Montana's population steadily grows and becomes more affluent, more land and water is continually being needed for agriculture, municipalities, industries, recreation, etc. This fact alone makes it necessary for the State to estimate the quantities of land and water which will be required by its citizens over the next 50 to 100 years. Such an estimate can be intelligently made only by preparing a statewide ultimate water needs study plan. This plan would project Montana's population, economy, resource development, etc., based upon scientific studies which would determine what the future needs of land and water would be.

While a statewide ultimate water needs study plan has been needed for some time in Montana, it has suddenly become imperative to prepare one in the shortest possible time. This has been occasioned by the recent demands of southwestern states for some of the "surplus" waters of the Pacific Northwest. As a result, Montana must determine what, if any, water will be surplus to her future needs before it is lost to southwestern states! Such a determination will require the intelligence and skills of well-educated and experienced experts in numerous fields such as soils scientists, engineers, economists, biologists, agronomists, recreation specialists, etc., together with a supporting staff and equipment.

Soils will have to be studied in more detail than has been done in the past in order to fairly accurately determine which dry lands in the various counties are capable of producing increased crops through irrigation. Adequate water can then be reversed for the irrigation of these lands. In a like manner, water projects for irrigation, municipal and industrial use and their related costs, together with water needs for recreation and pollution, must be carefully estimated. Therefore, a highly qualified group of individuals must be employed by the State to prepare a plan which will stand the scrutiny and criticism of states which desire some of Montana's water.

It must be an accepted fact that California with their wholly state financed Feather River Project ultimately to cost $3.65 billion and currently employing 4,000 employees, Texas with a statewide plan to cost $4 billion and Arizona, which is now in the process of bonding the state to the extent of

$500 million, will certainly make every effort in the analyzing of our criteria and methodology and when they obtain our ultimate needs figures to break them down in order that they may demand more water from the Columbia River Basin area.

The Oregon Legislature in 1965 appropriated $334 thousand to cover a year's expenses in developing an ultimate water needs plan. Washington has about $200 thousand annually for this purpose. Both are attempting to come up with a study by the end of 1969 that will depict their ultimate water requirements for the next 100 years. In this connection, with the initiative supplied mainly by Oregon and Washington, we have attended several meetings along with Idaho and Wyoming, in order to establish the best possible approach to accomplishing this task.

It has been mutually agreed by these states that we use the same assumptions, criteria and methodology in assimilating the water factual data. This is highly important so that we may act, more or less, as a Northwest unit, solidified in our stand against unjustifiable requests for our water.

Incidentally, we are suggesting that we confine our ultimate needs study to a period of 50 years. Projections for this period of time will be hard enough to justify, let alone attempt to guess what water will be required 100 years from now.